Partnering with Alaskan communities to examine health benefits of traditional wild berries

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Wild indigenous berries including *Vaccinium uliginosum, V. ovalifolium, Empetrum nigrum, Rubus chamaemorus*, and *R. spectabilis*, traditional subsistence foods in American Indian and Alaskan Native (AI/AN) populations, are a rich source of anthocyanins (AC) and proanthocyanidins (PAC), with known efficacy against metabolic disorders. In recent years, AI/AN communities have exhibited disproportionately high rates of type 2 diabetes mellitus; over twice the national average. Wild berries were tested using "Screens-to-Nature" (STN), a community-participatory approach to screen for potential antioxidants, glucosidase and protease inhibitors, in partnership with tribal members from three different Alaskan villages: Akutan, Seldovia, and Point Hope. Fruits that demonstrated activity in the STN were evaluated via HPLC and LC-MS. Significant species and location-based variation in AC (0.9-438.6 mg eq /100g fw) and PAC (73.7-625.2 mg eq /100g fw) were noted. Berries collected at the northernmost site (Point Hope) demonstrate significantly higher flavonoid concentrations in some species. A-type PAC dimers through tetramers were also identified in various species, which are being examined for lipid accumulation inhibition activity and effects on mRNA expression levels in 3T3-L1 adipocytes.

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